

Official Amendment
Serial No. 09/943,078
Docket : MIO 0083 PA/40509.162

REMARKS

Claims 2-11, 14-16, 39, and 45-49 are currently pending, all were rejected in the Final Office Action of December 17, 2003.

Statement of the Substance of the Interview

On December 15, 2003, Kristina E. Swanson, on behalf of the Applicant, conducted a telephone interview with the Examiner to determine why claim 11 had not been addressed in the Official Action dated October 17, 2003. Examiner stated it was an oversight on his part and that claim 11 should have been rejected over Tsutsumi. Examiner agreed to send a Supplemental Final Action to the Applicant with the previously omitted claim 11 rejection. Examiner also stated the time period would be re-started in order to give Applicant adequate time to respond to new rejection.

Rejections Under 35 U.S.C. § 102(b)

In the most recent Office Action, claims 5-7, 11, 14-16 and 46, 47, and 49 were rejected under 35 U.S.C. § 102(b) as being anticipated by Tsutsumi. Applicant respectfully traverses this rejection.

Claim 7 recites, in part, a method for fabricating simultaneously a gate area and local interconnect area in a damascene trench in a semiconductor device. A dielectric layer is formed over the base substrate. A gate oxide layer is formed on the base substrate within the gate area of the damascene trench. Conductive material is added to fill the damascene trench. The device is then planed to define a damascene structure where the damascene gate structure and damascene local interconnect structure are electrically coupled by the conductive material within the

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damascene trench. In addition, a connection between the damascene local interconnect structure and the base substrate is formed.

Tsutsumi discloses a method for fabricating simultaneously a gate area and local interconnect area in a semiconductor device. However, Tsutsumi fails to disclose a connection between the damascene local interconnect structure and the base substrate. Tsutsumi, instead, discloses forming the interconnect area 31 on top of the second insulting film 3 and not in connection with the base substrate 1 (Figs. 61, 68, 75, 86, and 94). This limitation is not found in the claimed invention. Because Tsutsumi does not disclose a connection between the damascene local interconnect structure and the base substrate, Tsutsumi does not recite all the limitations of the claimed invention. Therefore, Applicant asserts that claim 7 is not anticipated by Tsutsumi and requests that the Examiner withdraw his rejection of claim 7.

Independent claims 11, 14 and 16 also recite the limitation of a connection between the damascene local interconnect structure and the base substrate as recited in claim 7. Therefore, for the same reasons stated above, Applicant asserts that these claims are also not anticipated by Tsutsumi and requests that the Examiner withdraw his rejection of claims 11, 14 and 16.

Claims 5, 6, 15, 46, 47, and 49 depend on independent claims 7, 11, 14, and 16 either directly or ultimately. These dependent claims are patentable for the same reasons as presented above with respect to the claims from which they depend. Further, the dependent claims also include additional limitations which distinguish them from prior art. Therefore, Applicant asserts that claims 5, 6, 15, 46, 47, and 49 are also not anticipated by Tsutsumi and requests that the Examiner withdraw his rejection thereof.

Rejections Under 35 U.S.C. § 103(a)

Claims 2, 3, 39, 45, and 48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsutsumi in view of the basic text of Ghandi. Applicant respectfully traverses this rejection.

Claim 39 recites, in part, growing an oxide layer on the base substrate. A second

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patterned mask is formed over the semiconductor device and is arranged to expose at least a portion of the oxide layer within the local interconnect area. The exposed portion of said oxide layer is then etched away within said damascene trench.

In contrast, because Tsutsumi fails to disclose a connection between the local interconnect structure and the base substrate, it is not possible to grow an oxide layer on the base substrate exposed in the local interconnect area since there is no base substrate exposed in the local interconnect area. Instead, Tsutsumi discloses forming the interconnect area 31 on top of the second insulting film 3 and not on the base substrate 1 (Figs. 61, 68, 75, 86, and 94) as discussed more fully above.

Examiner admits Tsutsumi fails to teach a trench formed in the base substrate and cites Ghandi. However, Ghandi fails to remedy the deficiencies of Tsutsumi. Ghandi discloses using thermal oxidation to reduce leakage current. However, Ghandi fails to disclose growing an oxide layer on the base substrate exposed in the local interconnect area. Therefore, neither Tsutsumi nor Ghandi disclose this limitation of the claimed invention.

Nor does the hypothetical combination of Tsutsumi and Ghandi suggest or teach growing an oxide layer on the base substrate exposed in the local interconnect area. At best, the hypothetical combination of Tsutsumi and Ghandi teaches forming the interconnect area on top of a insulting film and using thermal oxidation to form the isolation trench. Because the hypothetical combination of Tsutsumi and Ghandi does not suggest or teach all the limitations of the claimed invention, Applicant asserts that claim 39 is patentable over the prior art and requests that the Examiner withdraw his rejection of claim 39.

Claims 2, 3, 45 and 48 depend upon the independent claims 7 and 39 either directly or ultimately. These dependent claims are patentable for the same reasons as presented above with respect to the claims from which they depend. Further, the dependent claims also include additional limitations which distinguish them from prior art. Therefore, Applicant believes claims 2, 3, 45 and 48 are also patentable over the prior art and request the Examiner withdraw his rejection to claims 2, 3, 45 and 48.

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Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsutsumi in view of Zhou. Applicant respectfully traverses this rejection.

Claim 4 depends on independent claim 7. Applicant believes Claim 7 as amended is patentable over the prior art for the reasons stated above. Claim 4 is patentable for the same reasons as presented above with respect to claims 7 from which it depends. Therefore, Applicant asserts that claim 4 is also patentable over the prior art and requests that the Examiner withdraw his rejection of claim 4.

Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsutsumi. Applicant respectfully traverses this rejection.

Claim 9, as amended, also recites a connection between the damascene local interconnect structure and the base substrate as discussed above for claim 7.

As mentioned above, Tsutsumi fails to disclose a connection between the local interconnect structure and the base substrate. Instead, Tsutsumi discloses forming the interconnect area 31 on top of the second insulting film 3 and not on the base substrate 1 (Figs. 61, 68, 75, 86, and 94). Therefore, for the same reasons mentioned above, Applicant asserts that claim 9 is not anticipated by Tsutsumi and requests that the Examiner withdraw his rejection of claim 9.

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CONCLUSION

For the above reasons, the Applicant respectfully submits that the above claims represent allowable subject matter. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,
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